CERTIUM VCS TEST SYSTEM FOR AIRCRAFT MANUFACTURERS

Your task

To ensure that radiocommunications systems of new aircraft function flawlessly, manufacturers need to test the system and verify its functionality in a near-real environment.

Aircraft manufacturers often install real air traffic control (ATC) radios to perform the required verification activities. To operate these radios, they need a compact voice communications system (VCS). VCS test systems provide the relevant operational features and the exact same behavior on the radio frequency, but they do not need to deliver the same performance as the operational systems of air navigation service providers.

Flexible, scalable and cost-effective solutions are required.

Rohde & Schwarz solution

IP based communications infrastructure such as the CERTIUM VCS is ideal for the challenges faced by the test systems.

Scalability

Test systems for aircraft manufacturers are typically very small installations independent from any other VCS. The systems consist of one VHF, one UHF and one HF radio and at least one or two controller working positions to handle voice communications and relevant services, such as SELCAL. Modern IP based VCSs with their distributed network intelligence do not require a central switching entity. They provide pay-as-you-grow scalability that allows small systems to start with one server and one controller working position while still offering the full feature set.

Cost-effectiveness

The high scalability of IP based communications systems means that aircraft manufacturers only need to invest in the relevant basic VCS devices to build a functioning non-redundant test system. Sharing the same IP infrastructure for voice and data applications creates synergies in procurement, operation and maintenance, all of which leads to significant cost savings.

Space saving

VoIP systems migrate intelligence away from the network core to the peripheral equipment at the network edge. Purely IP based communications systems can function with just a local area network, without a central TDM switching matrix. The extensive use of COTS hardware and small endpoints provides great flexibility in the final dimensioning of the system. The integration of VoIP radios into the overall architecture saves even more space.

The CERTIUM VCS has the advantage of a true IP VCS and provides aircraft manufacturers with all the benefits.

ROHDE & SCHWARZ

Make ideas real

Application

An aircraft manufacturer uses a fully IP based communications solution from Rohde & Schwarz to verify the radiocommunications of newly manufactured aircraft.

Pilot in cockpit.

The main components of the Rohde & Schwarz solution are the CERTIUM VCS system's controller working positions and VoIP-capable radios (R&S®Series5200 for VHF and UHF; R&S®Series4100 for HF). All devices are interconnected via a simple IP infrastructure. Thanks to the fully IP system design, the entire solution can be installed in a compact footprint and consists of only a few devices. Additional radios can be added at any time. Since the CERTIUM VCS is in line with the EUROCAE ED-137 standard, ED-137 compliant radios from other manufacturers can also be integrated.
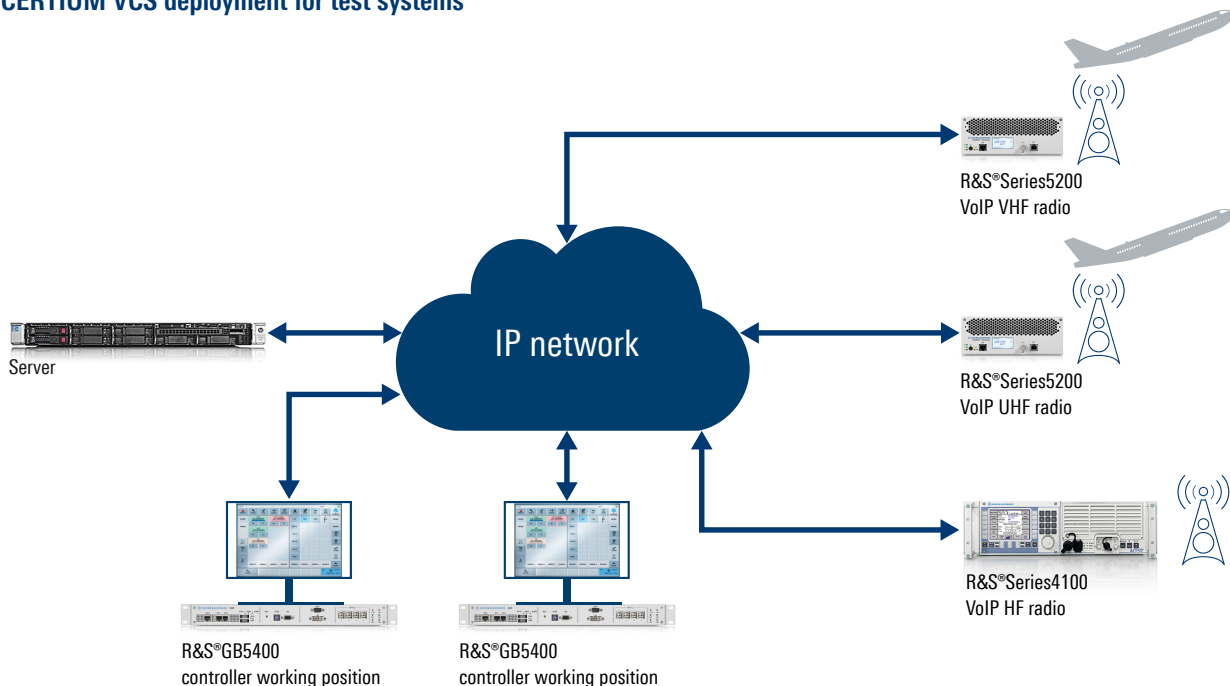
For the testing activities between the ground radio station and cockpit, the CERTIUM VCS system provides all relevant air-ground communications services for VHF, UHF and HF frequencies.

System overview:
► CERTIUM VCS controller working positions
► CERTIUM VCS VoIP radios for VHF/UHF and HF

The test system was integrated by Rohde & Schwarz.

CERTIUM VCS deployment for test systems